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MONETARY POLICY

The Loonie's Flirtation with Parity: Prospects and Policy Implications

By

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- With the Canadian dollar near parity with its US counterpart, monetary policymakers may come under pressure to curb future interest rate increases to limit the loonie's appreciation.
- When the value of the loonie is in line with economic fundamentals, such actions would necessarily compromise the domestic inflation target.
- By examining the factors underpinning the Canada/US exchange rate, we conclude that the present trading range for the loonie is supported by fundamentals. The Bank of Canada should therefore continue its policy of benign neglect with regard to the exchange rate.
- Our model of the fundamentals predicts a dollar at US97 cents in the second quarter of 2010. The dollar may move closer to parity later this year as commodity prices edge slightly higher and interest differentials increase.

The loonie's recent flirtation with US-dollar parity has stirred fears that a high dollar could undermine Canada's immediate economic growth prospects. The primary concern is that the rising Canadian dollar could damage the competitiveness of Canadian exports, particularly for the manufacturing sector. Another concern is the implication for monetary policy. The Bank of Canada must weigh the timing and scope of further rate-tightening moves in coming months to address inflationary concerns. In doing so, it will likely face increased pressure to temper its actions in order to limit the loonie's appreciation. This raises a perennial conflict faced by monetary policymakers. Should they focus more on the exchange rate in their interest rate-setting choices, or keep their focus on the 2 percent inflation target?

To better frame the monetary policy context, we revisit the factors that affect the exchange rate. By updating and fine-tuning an equation developed by Bank of Canada researchers – which, with rather small modifications, has been tracking the exchange rate for close to two decades – we find that commodity prices are still the main long-term drivers of the Canadian dollar. We also find that the Canada-US interest rate differential and indicators of financial stress have short-term influences on our currency. Our model suggests an exchange rate of about US97 cents for the second quarter of 2010. The current value for the loonie (US96 cents) therefore appears to be supported by fundamentals.

This finding weakens the argument that the Bank of Canada should limit the speed and scope of further rate-tightening to curb the loonie's appreciation. The Bank of Canada operates with a 2 percent inflation target, agreed with the elected government, which makes the domestic price level its overriding objective. If the foreign exchange rate were clearly out of line with the fundamentals, it might be possible for the Bank of Canada to hit its inflation target more effectively by taking steps to bring the currency into line with them. However, we find the foreign exchange rate reflects the fundamentals – with its recent strength, for example, reflecting robust foreign demand for Canadian goods and services. Measures to affect the exchange rate, such as increasing the supply of Canadian dollars to the market

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beyond what its target for the domestic price level requires, would necessarily compromise the inflation target. Our investigation therefore suggests that the Bank should pursue a policy of benign neglect with regard to the exchange rate: domestic price pressures should be its over-riding focus, and hitting the 2 percent inflation target its singular goal.

Revisiting the Bank of Canada Exchange Rate Equation

Many fundamental economic factors could in theory have an impact on the Canada/US dollar exchange rate: interest rate spreads, fiscal policy, relative inflation, productivity, and terms of trade, among others. To help explain the causes of Canada's exchange rate movements, two Bank of Canada researchers developed a simple model in the early 1990s that sought to explain Canada/US dollar movements in terms of energy and non-energy commodity prices as well as short-term interest rate differentials between the two countries (Amano and van Norden 1993).[1]

Renowned for its simplicity and strength, this equation also demonstrated that it could stand the test of time with minor modifications (Murray, Zelmer and Anitia 2000; Laidler and Aba 2001; Issa, Lafrance & Murray 2006; Maier & DePratto 2008). The original model, however, fails to capture two phenomena that are important in explaining recent movements in the Canadian exchange rate: the changing composition of Canadian commodity exports and the so-called "flight to safety" in financial markets during periods of financial crisis.

THE CHANGING COMPOSITION OF CANADIAN COMMODITY EXPORTS: Although Canada has always been an important exporter of commodities, the composition of our commodity exports has changed over time. While Canada was once a net importer of energy products, such as crude oil, it is now an important exporter of such commodities. The original Bank of Canada equation fails to adequately capture this dynamic effect. Importantly, the shift in the relationship between the energy variable and the dollar makes the original model's results insignificant over the whole period (Issa, Lafrance & Murray 2006). To overcome this, separating energy and non-energy variables by decade can capture the shift in the composition of commodity exports (Aba & Laidler 2001). With decade-by-decade variables, the original Bank of Canada equation's ability to explain movements in the exchange rate over almost four decades – up to 2007 – is impressive (Figure 1).[2]

To better reflect the changing composition of Canadian commodity exports, we also use, where available, commodity price indices that are weighted by the value of Canadian exports. In contrast, the Bank of Canada's commodity price indices are production weighted – so the weight of each commodity in the index is based on the average value of the Canadian production of the commodity rather than the value of Canadian exports. The latter, however, should be more closely related to movements in exchange rate markets (Orr 1999).[3]

THE INFLUENCE OF PERIODS OF FINANCIAL STRESS: The original Bank of Canada equation can be further fine-tuned by including a variable to explain variations in the value of the Canadian dollar under conditions of major financial stress. The American dollar has been, and still is, perceived as a safe haven for nervous investors looking to secure their wealth. In these instances, the Canadian dollar naturally suffers vis-à-vis the American dollar. A prime example: during the recent financial crisis the American dollar was the main beneficiary of a global flight to safety.

The original equation's short-term interest rate factor – which is intended to capture the short-term relative attractiveness of American and Canadian assets – can be supported by another variable that takes into account financial stress, the IMF Financial Stress Index, which includes the TED spread.[4]

1 See Appendix A for a more detailed description of the model.

2 The Figure uses data from 1973Q1 – 2007Q2, and uses the regression results to extrapolate ahead to 2010Q1.

3 For the last decade, we use the TD commodity and energy price indices that are weighted according to average Canadian export values. See Appendix for more details.

4 The TED spread is a widely recognized proxy for financial stress because it represents the extra yield on interbank loans over short-term sovereign debt. Yet, this variable alone misses other financial market pressures that the IMF index takes into account. TED is an acronym formed from T-bill and ED, the ticker symbol for the Eurodollar futures contract.

Figure 1: Actual and Predicted Canada/US Exchange Rate, Quarterly Averages, 1973 Q1-2010 Q1.

Sources: Bank of Canada, Statistics Canada; authors' calculations.

Model Results

Our model nicely tracks historical exchange rate movements, as does the conventional BOC model (with decade-by-decade variables), but significantly outperforms that model in recent periods (Figure 1). Also significant is how well the model's predictive values for the current exchange rate converge and align with actual figures following the stresses of the 2008/09 financial crisis.

Our results show that energy prices shift from having a negative influence on the dollar in the 1970s and 1980s, to having a strong positive influence from 2000 on.[5] This result, consistent with the widespread belief that the Canadian dollar is to some extent a "petro" currency, reflects in large part the fact that Canada has become an important net exporter of oil. Perhaps surprisingly, however, non-energy commodity prices – such as those of precious metals (gold and silver) and non-precious metals and minerals (aluminum, copper, nickel, zinc and uranium) – continue to have an important influence on the Canadian dollar.

The relative attractiveness of Canadian assets, as measured by the difference between short-term Canadian and US rates, also helps explain variations in the Canadian dollar. And consistent with the "flight to safety" phenomenon, periods of financial stress, as measured by the IMF Financial Stress Index, are associated with a lower Canadian dollar.

Outlook for the Canadian Dollar

Three things are important to consider for the Canadian dollar in the short and medium term: the short-term interest rate differential between Canada and the US; the price of commodities, notably crude oil; and potential periods of financial stress related to worries about government debt at the international level.

5 See Appendix Table A1 for regression results.

The Bank of Canada raised its policy rate by 25 basis points in its latest announcement on June 1, 2010, and further increases are expected, potentially widening the interest rate differential between Canada and the US.[6] According to our model, a greater interest rate differential between Canada and the US in the future will lead to a higher Canadian dollar. But how much higher? Our results suggest that an increase of 100 basis points in the differential between short-term rates leads to a short-run increase in the Canadian dollar of approximately 0.7 percent,[7] or 0.7 cents with the dollar at parity. That said, currencies can sometimes move ahead of fundamentals, monetary policy stances can shift, and the Bank of Canada should prudently monitor the dollar's reaction to initial interest rate hikes.

The dollar's risk of appreciation depends more on the volatile, and unknown, price path of energy and non-energy commodities. According to future contracts, the price of crude oil, for example, is expected to be at about US$83 in a year's time, up from about US$76 today. According to the model, a sustained increase of 10 percent in the energy index – which is comprised of prices other than oil – gradually leads to a long-term increase of about 2 cents for the Canadian dollar when it is near parity.[8]

However, there is a factor working against an appreciation in value of the Canadian dollar: current worries about the sustainable level of government debt, notably in some eurozone countries.[9] The recent €750 billion loan package announced by the European Union and the IMF, while not necessarily addressing long-term fiscal problems, reduces substantially the risk of a period of financial stress in the short and medium term, and therefore lessens some of the potential downward pressure on the Canadian dollar.

Overall, our model predicts a Canadian dollar valued at about US97 cents for the second quarter of 2010, moving closer to parity as commodity prices edge slightly higher and interest differentials increase during the third and fourth quarters.[10]

Conclusion and Policy Implications

With the exception of the largest global financial crisis since the 1930s, our modified Bank of Canada model explains well the behaviour of the Canadian dollar. Canada's commitment to a flexible exchange rate has served it well in the past – a flexible exchange rate acts as a shock absorber for a small, open exporting country. When demand for Canadian products shifts, it is preferable to have the exchange rate adjust rather than let domestic inflationary pressures grow. As Canada emerges from a recession, some sectors and regions are no doubt more adversely affected than others by a dollar at parity. But our model suggests that the present trading range for the loonie is supported by fundamentals, thus weakening arguments for monetary policymakers to give special attention to the exchange rate within the context of achieving domestic inflation targets.

6 In support of this stance, current spreads between US and Canadian one-year T-bills imply that the market expects interest rates in Canada to be around 100 basis points higher than in the US in one year's time.

7 This is assuming constant relative GDP deflator growth between Canada and the US since the model's predicted variable is the real exchange rate.

8 This calculation also assumes constant relative GDP deflator growth between Canada and the US, since the model's predicted variable is the real exchange rate.

9 The Canadian dollar had been hovering around parity since the beginning of April 2010, but depreciated to about 96 cents when worries about Greek government debt intensified in early May. Following the announcement on May 9, 2010 of an unprecedented €750 billion loan package from the European Union authorities and the IMF, the Canadian dollar regained much of the ground lost and moved closer to parity. The problems associated with government debt, however, are still casting a shadow on the economic recovery of eurozone countries and of other countries with similar problems. Other things being equal, lower economic growth leads to lower commodity prices and, hence, a lower Canadian dollar.

10 Like any currency prediction, however, it is as good as the predictions of the underlying factors. A dollar around parity therefore hinges on the Bank of Canada or the US Fed not taking an unexpected course of action on commodity prices meeting market's expectations and on financial markets remaining relatively calm.

The Original Bank of Canada Equation, which is specified as an error-correction model, can be expressed as follows:

$$\text{Change RFX} = a(RFX_{t-1} - b_0 - bcCOM_{t-1} - beENE_{t-1}) + gRDIFF_{t-1}$$

With some simple mathematical manipulations, the equation becomes:

$$\text{Change RFX} = aRFX_{t-1} - ab_0 - abcCOM_{t-1} - abeENE_{t-1} + gRDIFF_{t-1}$$

By defining $-ab_0 = V_0$, $-abc = Vc$, and $-abe = Ve$, the following equation can be estimated using an ordinary least squares method:

$$\text{Change RFX} = V_0 + aRFX_{t-1} + VcCOM_{t-1} + VeENE_{t-1} + gRDIFF_{t-1}$$

RFX corresponds to the real Canada/US exchange rate, which is the nominal exchange rate multiplied by the ratio of the US to Canada GDP deflator. COM and ENE are respectively proxies for non-energy commodity and energy terms of trade; that is, the price of exports less imports. More recent versions of the Bank of Canada equation (Issa, Lafrance & Murray 2006) use the Bank of Canada Commodity and Non-Energy commodity indices deflated by the US GDP deflator. We use the same index for the period 1973 to 2000. From 2000 on, however, we use the TD commodity price indices. The TD indices are weighted by exports levels – the average exports from 2003 to 2005 – rather than domestic production levels (See Table A2 for the correlation matrix of the commodities within this index and the Canadian dollar).[11,12]

In the original equation, RDIFF corresponds to the nominal short-long interest rate differential between Canada and the United States. Following Issa, Lafrance & Murray (2006), we use the difference between Canada and US three-month commercial paper to estimate short-term rate differentials between the two countries. Among other things, RDIFF allows capturing the short-term relative attractiveness of a country for investors. In our model, we supplement RDIFF with another variable in order to better reflect the relative attractiveness of Canada versus the US. We add the International Monetary Fund's Financial Stress Index, which is composed of various market-based indicators such as the TED spread.[13] During periods of financial stress, the US is often the beneficiary of an inflow of money looking for relatively safe assets, often referred to as "flight to safety," which puts downward pressure on the relative value of the Canadian dollar.

Note that all variables in the model, including the dependent variable, are expressed as logs except for the RDIFF and financial stress variables. The regression uses data from 1973Q1 – 2007Q2 (See Table A1 for results) and Figure 1 extrapolates ahead to 2010Q1. The 1973Q1 – 2007Q2 period precedes a period of erratic financial market behaviour; including this latter period in our model reduces the significance of our estimates. Further, since the equations are specified as an error-correction model, the equations assume that deviations from long-term relationships among variables are gradually corrected from one period to the next. Commodity and energy price indices capture long-run influences on the dollar while other independent variables capture short-run dynamics.[14] To more easily interpret the coefficients, as we do in the main text, the OLS coefficients below can be transformed back to the initial error-correction equation using the simple mathematical manipulations that helped define OLS coefficients.

11 In May 2010, the Bank of Canada released a new commodity price index with production weights that are updated annually. Using this data in the model, the regression results still do not outperform those from the export-weighted price index.

12 The export-weighted price index is intended to better capture the relative demand for Canadian currency via the direct influence of tradable (among countries) commodities on the nominal exchange rate. Though the demand and supply of domestically produced and consumed goods also influence the real exchange rate, this impact is captured in our model through the domestic GDP deflator in the real exchange rate variable, not with price index weights. That said, an examination of historical, annual production weights for commodities, by commodity group, shows that production weights do not appear to differ much from export weights, and the indexes are positively correlated. Therefore, the main driver of the improved results for non-energy commodity coefficients in our revised model likely comes from the reweighting of the price index for the most recent decade. Were production weights reweighted according to average production levels for similar years, a similar result would likely emerge.

13 An episode of financial stress is identified as a period when the index for a country is more than one standard deviation above its trend. The IMF Financial Stress Index is available from 1980:Q4 to 2008:Q3. For the remaining periods, the quarterly average of the TED spread is used.

14 Although not presented here, we perform simple unit root and cointegration tests on the equation's variables for the 2000-2007 period. We find the RFX, COMM and ENE variables have evidence of a unit root whereas the RDIFF variable does not. Much like in Amano and Van Norden (1993), our tests for cointegration find mixed results, but the Johansen test shows evidence of at least one cointegrating vector with the real exchange rate.

Regression Results

	Bank of Canada – Conventional, with decade-by-decade variables		Modified with Financial Stress Index and TDCI	
variables	*coefficients*	*p-value*	*coefficients*	*p-value*
RFX	-0.150	0.000	-0.157	0.000
COM70s	0.066	0.000	0.069	0.000
COM80s	0.088	0.000	0.090	0.000
COM90s	0.049	0.087	0.050	0.079
COM2000s	0.036	0.432	0.067	0.039
ENE70s	-0.043	0.002	-0.046	0.001
ENE80s	-0.029	0.002	-0.030	0.001
ENE90s	-0.005	0.801	-0.008	0.698
ENE2000s	0.059	0.000	0.036	0.026
RDIFF	0.007	0.000	0.007	0.000
IMF index	n.a.	n.a.	-0.012	0.018
Constant	-0.064	0.000	-0.064	0.000
Adjusted R^2	0.25		0.27	

Sources: Bank of Canada; authors' calculations.

Table A2 Correlation Results for Different Price Indices, 1997-2010, monthly data

	Overall	Ex-energy	Energy	Food	Precious Metals	Non-Precious Metals	Forest	CAD
Overall	1.000							
Ex-energy	.895	1.000						
Energy	.990	.823	1.000					
Ag	.819	.828	.781	1.000				
Precious Metals	.767	.840	.711	.842	1.000			
Non-Precious Metals	.853	.980	.776	.733	.749	1.000		
Forest	.454	.462	.431	.268	.176	.418	1.000	
CAD	.880	.926	.827	.809	.868	.867	.492	1.000

± .156 critical value .05 (two-tail)

± .204 critical value .01 (two-tail)

Source: TD Economics.

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